OWNER'S GUIDE

AMERICAN MADE · *AMERICAN OWNED*

OUTDOOR POWER EQUIPMENT

MTD

YARD MACHINES

Important: Read Safety Rules and Instructions Carefully

IMPORTANT! Record the exact **Model No.** and **Serial No.** which appear on the upper portion of rear frame of your unit in the space below. You **must** have these numbers, along with the date of purchase, in order to receive warranty or service.

MEETS ANSI SAFETY STANDARDS

MODEL NO.	SERIAL NO.
13 ☐ 6 ☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐

TRANSMATIC FRONT ENGINE LAWN TRACTORS

Model 600 Series Lawn Tractors

WARNING: This unit is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local or state laws (if any). If a spark arrester is used, it should be maintained in effective working order by the operator.

In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands. A spark arrester for the muffler is available through your nearest engine authorized service dealer or contact the service department, P.O. Box 368022, Cleveland, Ohio 44136-9722.

MTD PRODUCTS INC • P.O. BOX 368022 • CLEVELAND, OHIO 44136-9722

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IMPORTANT SAFE OPERATION PRACTICES

THIS SYMBOL POINTS OUT IMPORTANT SAFETY INSTRUCTIONS WHICH, IF NOT FOLLOWED, COULD ENDANGER THE PERSONAL SAFETY AND/OR PROPERTY OF YOURSELF AND OTHERS. READ AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL BEFORE ATTEMPTING TO OPERATE YOUR UNIT. WHEN YOU SEE THIS SYMBOL— **HEED ITS WARNING.**

DANGER: **Your lawn mower was built to be operated according to the rules for safe operation in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in injury. This lawn mower is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.**

I. GENERAL OPERATION

1. Read, understand, and follow all instructions in the manual and on the machine before starting. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
2. Only allow responsible individuals familiar with the instructions to operate the machine. Know controls and how to stop the machine quickly.
3. Do not put hands or feet under cutting deck or near rotating parts.
4. Clear the area of objects such as rocks, toys, wire, etc., which could be picked up and thrown by the blade. A small object may have been overlooked and could be accidentally thrown by the mower in any direction and cause injury to you or a bystander. To help avoid a thrown objects injury, keep children, bystanders and helpers at least 75 feet from the mower while it is in operation. Always wear safety glasses or safety goggles during operation or while performing an adjustment or repair, to protect eyes from foreign objects. Stop the blade(s) when crossing gravel drives, walks or roads.
5. Be sure the area is clear of other people before mowing. Stop machine if anyone enters the area.
6. Never carry passengers.
7. Disengage blade(s) before shifting into reverse and backing up. Always look down and behind before and while backing.
8. Be aware of the mower and attachment discharge direction and do not point it at anyone. Do not operate the mower without either the entire grass catcher or the chute guard in place.
9. Slow down before turning. Operate the machine smoothly. Avoid erratic operation and excessive speed.
10. Never leave a running machine unattended. Always turn off blade(s), place transmission in neutral, set park brake, stop engine and remove key before dismounting.
11. Turn off blade(s) when not mowing.
12. Stop engine and wait until blade(s) comes to a complete stop before (a) removing grass catcher or unclogging chute, or (b) making any repairs, adjusting or removing any grass or debris.
13. Mow only in daylight or good artificial light.
14. Do not operate the machine while under the influence of alcohol or drugs.
15. Watch for traffic when operating near or crossing roadways.
16. Use extra care when loading or unloading the machine into a trailer or truck. This unit should not be driven up or down a ramp onto a trailer or truck under power, because the unit could tip over, causing serious personal injury. The unit must be pushed manually on a ramp to load or unload properly.
17. Never make a cutting height adjustment while engine is running if operator must dismount to do so.
18. Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts. Do not wear loose fitting clothes or jewelry. They can be caught in moving parts. Never operate a unit in bare feet, sandals, or sneakers.
19. Check overhead clearance carefully before driving under power lines, wires, bridges or low hanging tree branches, before entering or leaving buildings, or in any other situation where the operator may be struck or pulled from the unit, which could result in serious injury.
20. Disengage all attachment clutches, thoroughly depress the brake pedal, and shift into neutral before attempting to start engine.
21. Your mower is designed to cut normal residential grass of a height no more than 10". Do not attempt to mow through unusually tall, dry grass (e.g., pasture) or piles of dry leaves. Debris may build up on the mower deck or contact the engine exhaust presenting a potential fire hazard.

II. SLOPE OPERATION

Slopes are a major factor related to loss of control and tip-over accidents which can result in severe injury or death. **All** slopes require extra caution. If you cannot back up the slope or if you feel uneasy on it, do not mow it.

For your safety, use the slope gauge included as part of this manual to measure slopes before operating this unit on a sloped or hilly area. If the slope is greater than 15° as shown on the slope gauge, do not operate this unit **on** that area or serious injury could result.

DO:

Mow up and down slopes, not across.

Remove obstacles such as rocks, limbs, etc.

Watch for holes, ruts or bumps. Uneven terrain could overturn the machine. **Tall grass can hide obstacles.**

Use slow speed. Choose a low enough gear so that you will not have to stop or shift while on the slope. Always keep machine in gear when going down slopes to take advantage of engine braking action.

Follow the manufacturer's recommendations for wheel weights or counterweights to improve stability.

Use extra care with grass catchers or other attachments. These can change the stability of the machine.

Keep all movement on the slopes **slow** and **gradual**. Do not make sudden changes in speed or direction. Rapid engagement or braking could cause the front of the machine to lift and rapidly flip over backwards which could cause serious injury.

Avoid starting or stopping on a slope. If tires lose traction, disengage the blade(s) and proceed slowly **straight** down the slope.

DO NOT:

Do not turn on slopes unless necessary; then, turn slowly and gradually downhill, if possible.

Do not mow near drop-offs, ditches or embankments.The mower could suddenly turn over if a wheel is over the edge of a cliff or ditch, or if an edge caves in.

Do not mow on wet grass. Reduced traction could cause sliding.

Do not try to stabilize the machine by putting your foot on the ground.

Do not use grass catcher on steep slopes.

III. CHILDREN

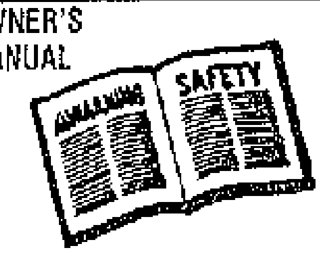
Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the machine and the mowing activity. **Never** assume that children will remain where you last saw them.

1. Keep children out of the mowing area and in watchful care of an adult other than the operator.
2. Be alert and turn machine off if children enter the area.
3. Before and when backing, look behind and **down** for small children.
4. Never carry children. They may fall off and be seriously injured or interfere with the safe machine operation.
5. Never allow children under 14 years old to operate the machine. Children 14 years and over should only operate machine under close parental supervision and proper instruction.
6. Use extra care when approaching blind corners, shrubs, trees or other objects that may obscure your vision of a child or other hazard.
7. Remove key when machine is unattended to prevent unauthorized operation.

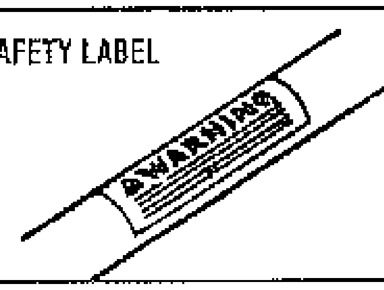
IV. SERVICE

1. Use extreme care in handling gasoline and other fuels. They are extremely flammable and the vapors are explosive.
   a. Use only an approved container.
   b. Never remove fuel cap or add fuel with the engine running. Allow engine to cool at least two minutes before refueling.
   c. Replace fuel cap securely and wipe off any spilled fuel before starting the engine as it may cause a fire or explosion.
   d. Extinguish all cigarettes, cigars, pipes and other sources of ignition.
   e. Never refuel the machine indoors because fuel vapors will accumulate in the area.
   f. Never store the fuel container or machine inside where there is an open flame or spark, such as a gas hot water heater, space heater or furnace.
2. Never run a machine inside a closed area.
3. To reduce fire hazard, keep the machine free of grass, leaves or other debris build-up. Clean up oil or fuel spillage. Allow machine to cool at least 5 minutes before storing.
4. Before cleaning, repairing or inspecting, make certain the blade and all moving parts have stopped. Disconnect the spark plug wire, and keep the wire away from the spark plug to prevent accidental starting.
5. Check the blade and engine mounting bolts at frequent intervals for proper tightness. Also, visually inspect blade for damage (e.g., excessive wear, bent, cracked). Replace with blade which meets original equipment specifications.
6. Keep all nuts, bolts and screws tight to be sure the equipment is in safe working condition.
7. Never tamper with safety devices. Check their proper operation regularly. Use all guards as instructed in this manual.
8. After striking a foreign object, stop the engine, remove the wire from the spark plug and thoroughly inspect the mower for any damage. Repair the damage before restarting and operating the mower.
9. Grass catcher components are subject to wear, damage and deterioration, which could expose moving parts or allow objects to be thrown. For your safety protection, frequently check components and replace with manufacturer's recommended parts when necessary.
10. Mower blades are sharp and can cut. Wrap the blade(s) or wear gloves and use extra caution when servicing blade(s).
11. Check brake operation frequently. Adjust and service as required.
12. Muffler, engine and belt guards become hot during operation and can cause a burn. Allow to cool down before touching.
13. Do not change the engine governor settings or overspeed the engine. Excessive engine speeds are dangerous.
14. Observe proper disposal laws and regulations. Improper disposal of fluids and materials can harm the environment and the ecology.
   a. Prior to disposal, determine the proper method to dispose of waste from your local Environmental Protection Agency. Recycling centers are established to properly dispose of materials in an environmentally safe fashion.
   b. Use proper containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them. Properly dispose of the containers immediately following the draining of fluids.
   c. DO NOT pour oil or other fluids into the ground, down a drain or into a stream, pond, lake or other body of water. Observe Environmental Protection Agency regulations when disposing of oil, fuel, coolant, brake fluid, filters, batteries, tires and other harmful waste.

OWNER'S MANUAL



SAFETY LABEL



WARNING — *YOUR RESPONSIBILITY*

Restrict the use of this power machine to persons who read, understand and follow the warnings and instructions in this manual and on the machine.

UNPACKING

TO REMOVE UNIT FROM CRATE

1. Remove all screws from the top of the crate using a 1/4" hex head socket or a flat blade screwdriver.
2. To remove ends, grasp top board on the end, and pull towards you in a downward motion.
3. Set panel aside to avoid tire punctures.
4. Repeat procedure for each side of the crate.
5. Remove and discard plastic bag which covers unit.
6. Loose parts (may include the owner's guide, steering wheel, battery fluid, chute deflector, optional mulching kit, etc.) are on the seat and wrapped in plastic. Carefully cut and remove the plastic wrap. Remove loose parts from the seat.
7. Make certain brake is released. Raise the deck and push the unit off the skid.
8. If your unit has a two-piece steering shaft, the upper steering shaft is tied to the steering wheel for shipping. Cut and remove the cable tie.

ASSEMBLY INSTRUCTIONS

BATTERY INFORMATION

WARNING

A. Battery acid must be handled with great care as contact with it can burn and blister the skin. It is also advisable to wear protective clothing (goggles, rubber gloves and apron) when working with it.*

B. Should battery acid accidentally splatter into the eyes or onto the face, rinse the affected area immediately with clean cold water. If there is any further discomfort, seek prompt medical attention.

C. If acid spills on clothing, first dilute it with clean water, then neutralize with a solution of ammonia/water or baking soda/water.

D. Since battery acid is corrosive, do not pour it into any sink or drain. Before discarding empty electrolyte containers, rinse them with a neutralizing solution.

E. NEVER connect or disconnect charger clips to battery while charger is turned on as it can cause sparks.

F. Keep all lighted materials (cigarettes, matches, lighters) away from the battery as the hydrogen gas generated during charging can be combustible.

G. As a further precaution, only charge the battery in a well-ventilated area.

***Always shield eyes, protect skin and clothing when working near batteries.**

DANGER

Battery contains sulfuric acid. Refer to warning above. Antidote: EXTERNAL—Flush with water. INTERNAL—Drink large quantities of water or milk. Follow with milk of magnesia, beaten eggs or vegetable oil. Call physician immediately. EYES: Flush with cool water for at least 15 minutes, then get prompt medical attention.

Since batteries produce explosive gases, keep all lighted materials (cigarettes, lighters, matches, etc.) away. Be sure to charge battery only in well-ventilated areas. Make certain venting path of battery (drain tube) is always open.

KEEP BATTERIES
OUT OF THE REACH OF CHILDREN!

IMPORTANT: After assembly, service engine with gasoline, and check oil level as instructed in the separate engine manual packed with your unit.

NOTE: Reference to right or left hand side of the unit is observed from the driver's seat, facing forward.

TOOLS REQUIRED FOR ASSEMBLY

(1) 1/4" socket wrench or flat blade screwdriver
(1) 1/2" wrench or socket wrench*
(1) 9/16" wrench or socket wrench
(2) 7/16" wrenches or socket wrenches

*If your steering wheel cap is square, you **must** have a socket wrench in order to install the steering wheel.

ACTIVATING AND CHARGING THE BATTERY

Do not activate battery (fill with battery acid) until battery is actually placed in service. Be certain to read previous warnings before activating the battery.

1. Pivot the seat forward. Unhook the strap which secures the battery (hook is on rear frame, under fender). Disconnect the positive cable from the positive terminal. Save the hardware for reassembly.
2. Remove the battery from the lawn tractor, paying attention to how the battery is placed in the unit, and how the drain tube (attached to the battery) is routed.
3. Activate the battery as instructed in the "Quick Start" brochure included with the battery fluid. **Read instructions carefully.**

NOTE: *You can continue assembling the lawn tractor while battery is standing for 30 minutes (after filling with acid), and later while you are charging the battery.*

IMPORTANT: To obtain the maximum life from your battery, it MUST BE CHARGED prior to initial use.

<u>CHARGE THE BATTERY</u> after the 30 minute standing period. Use a 12-volt automotive type battery charger to charge the battery at 6 AMPS for one hour before installation.

NOTE: *If you charge the battery at a lower AMP rate, use a hydrometer to make sure the battery is completely charged. The hydrometer should read 1.260 minimum. DO NOT CHARGE AT MORE THAN 6 AMPS.*

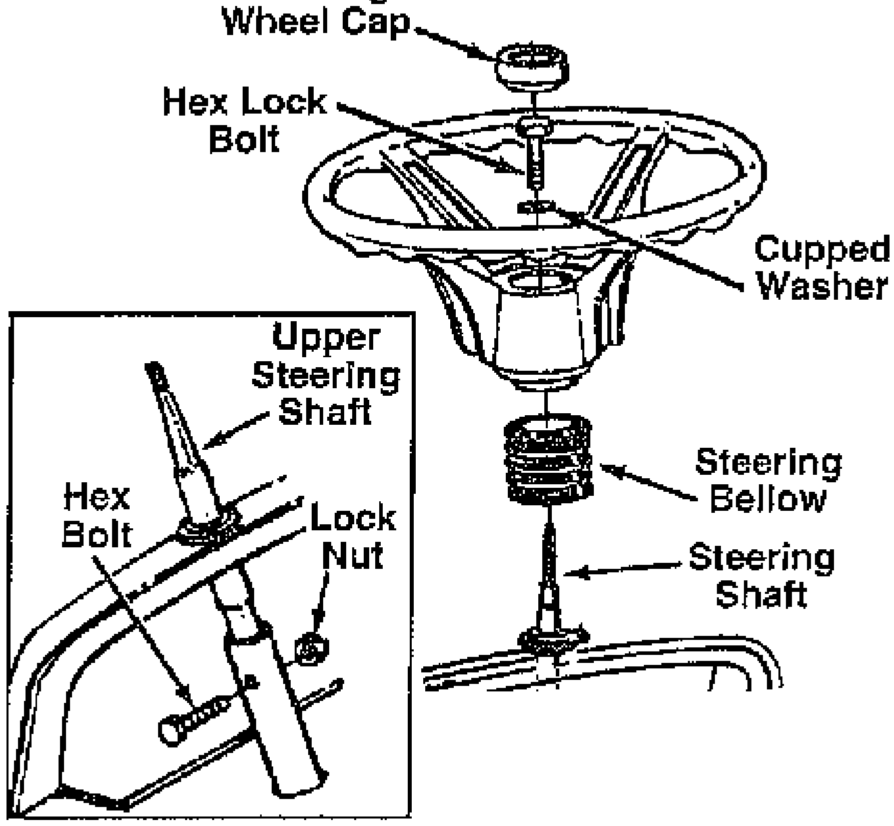


FIGURE 1.

ATTACHING THE STEERING WHEEL

1. **Models with two-piece steering shaft:** Raise the hood on the lawn tractor and remove the hex bolt and lock nut from the lower steering shaft. Insert end of upper shaft through the hole in dash panel, and into the lower steering shaft. Align the holes in the upper and lower steering shafts, and secure with hex bolt and lock nut just removed. See figure 1, inset.
2. The hardware for attaching the steering wheel has been packed inside the steering wheel. Carefully pry off the steering wheel cap and remove the hardware.
3. Remove the steering bellow from the lift lever on the right hand side of lawn tractor. Place steering bellow over the steering shaft extending through the dash.

NOTE: *If the openings on each end of the steering bellow are two different sizes, the smaller end goes down against the dash of the lawn tractor.*

4. **With the wheels of the tractor pointing straight forward,** place the steering wheel over the steering shaft, positioning steering wheel as desired.
5. Place the washer with the cupped side down over the steering shaft. Secure with hex lock bolt.

NOTE: *If your steering wheel cap is square, you* ***must*** *use a socket wrench.*

6. Place the steering wheel cap over the center of the steering wheel and seat it with your hand.

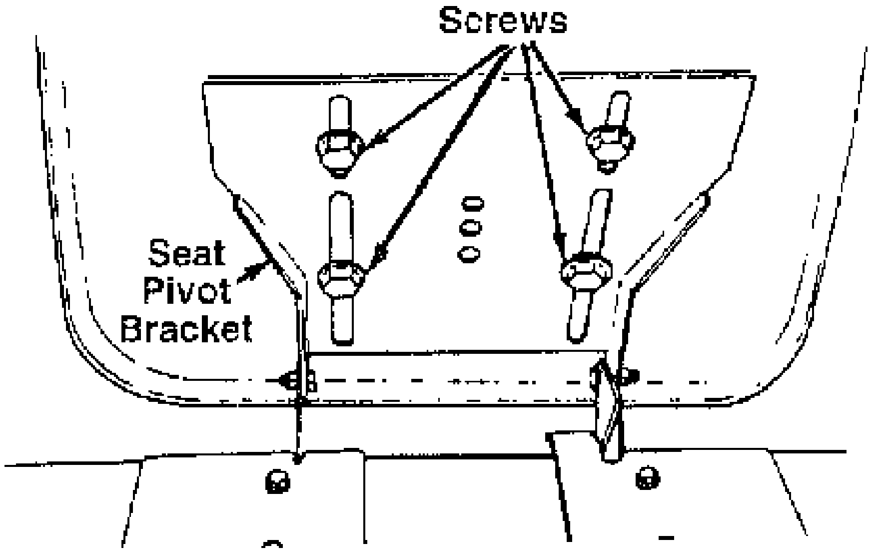


FIGURE 2.

ATTACHING THE SEAT

Remove the four screws which secure the seat to the seat pivot bracket. Turn the seat around and place in position against the seat pivot bracket, lining up the slotted holes in the pivot bracket with the holes in the seat. Select desired position for the seat, and secure with the four screws. See figure 2.

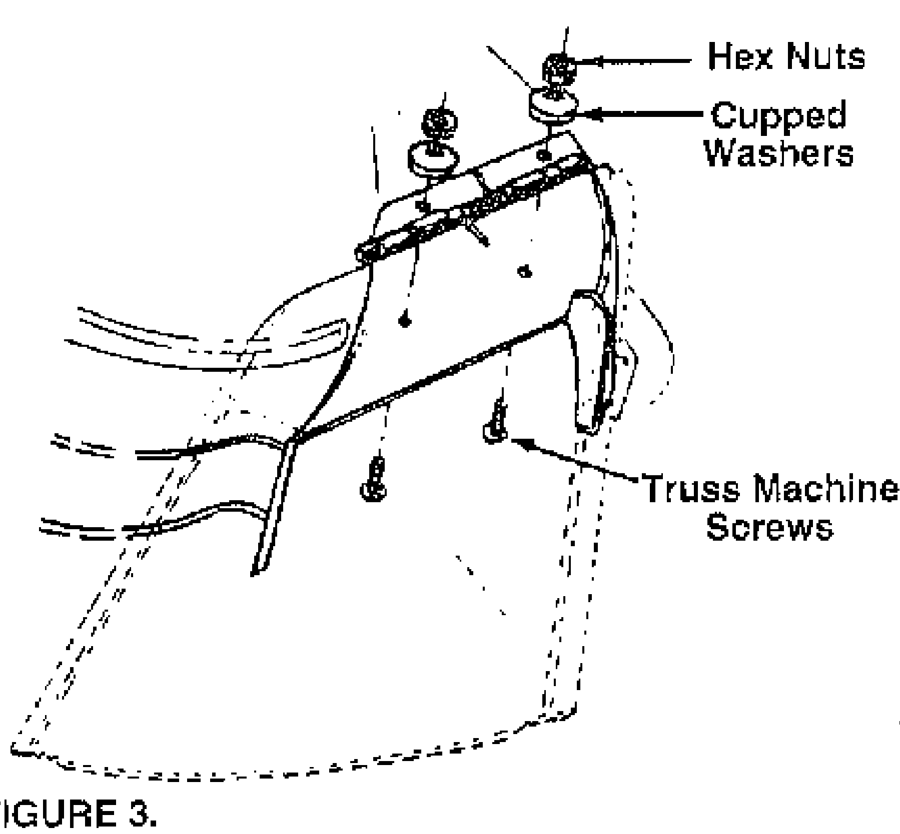


FIGURE 3.

ATTACHING THE CHUTE DEFLECTOR

The chute deflector must be attached to the right side of the deck so that it covers the chute opening. (For 30" decks, refer to the separate deck manual.)

WARNING: Do not operate your unit unless the chute deflector has been properly installed.

1. Make certain deck is raised to its highest position (lift lever pulled all the way back).
2. Remove the truss machine screws, cupped washers and hex jam nuts which are attached to the deck next to the chute opening.
3. Place the chute deflector in position as shown in figure 3. Secure with hardware just removed. Cupped sides of washers go against the chute deflector.

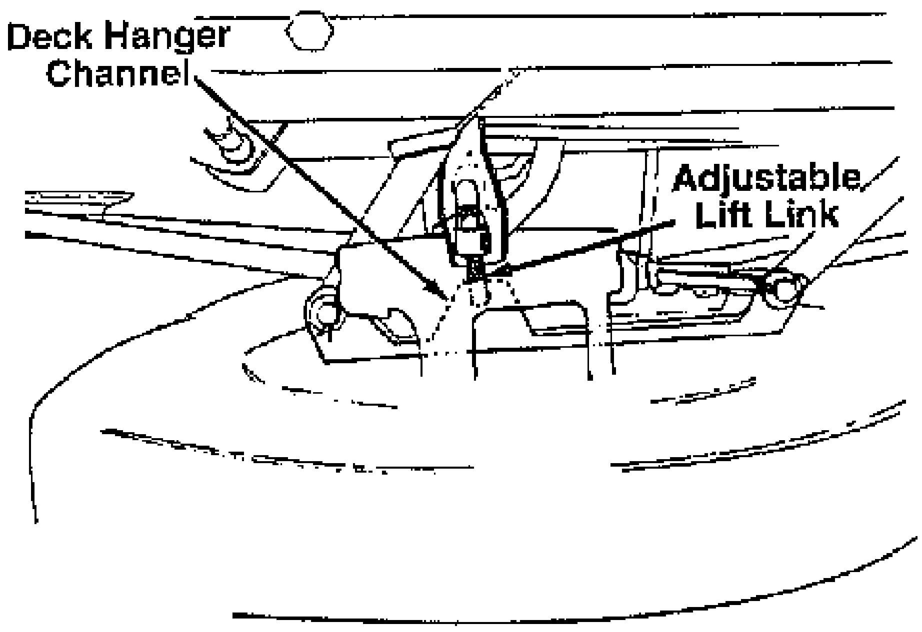


FIGURE 4.

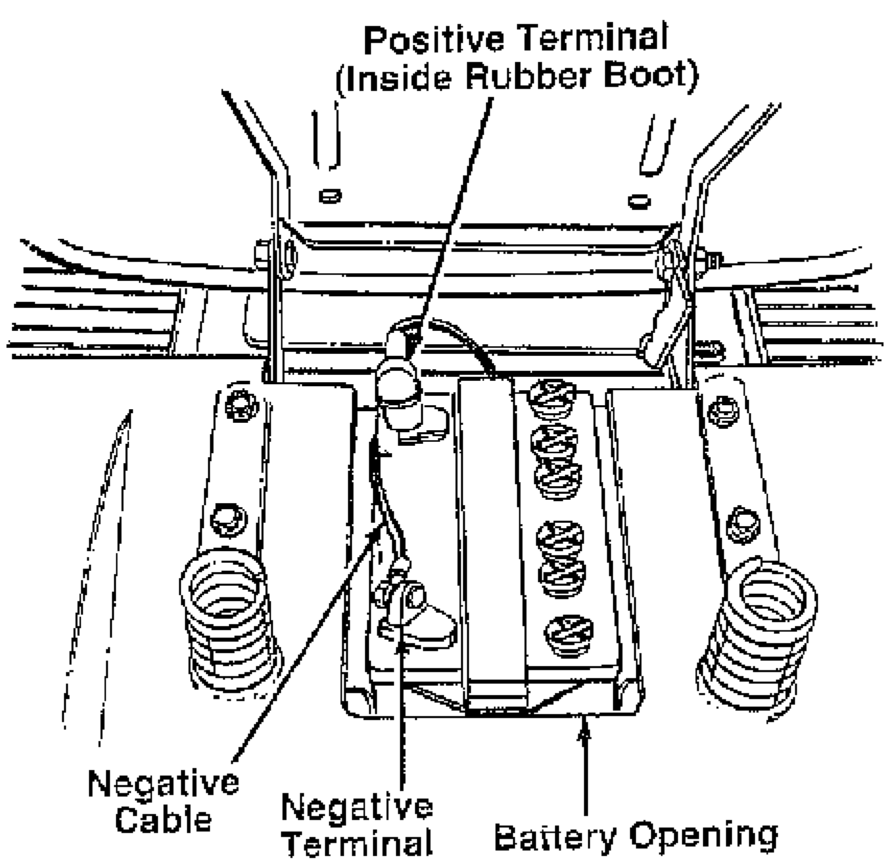


FIGURE 5.

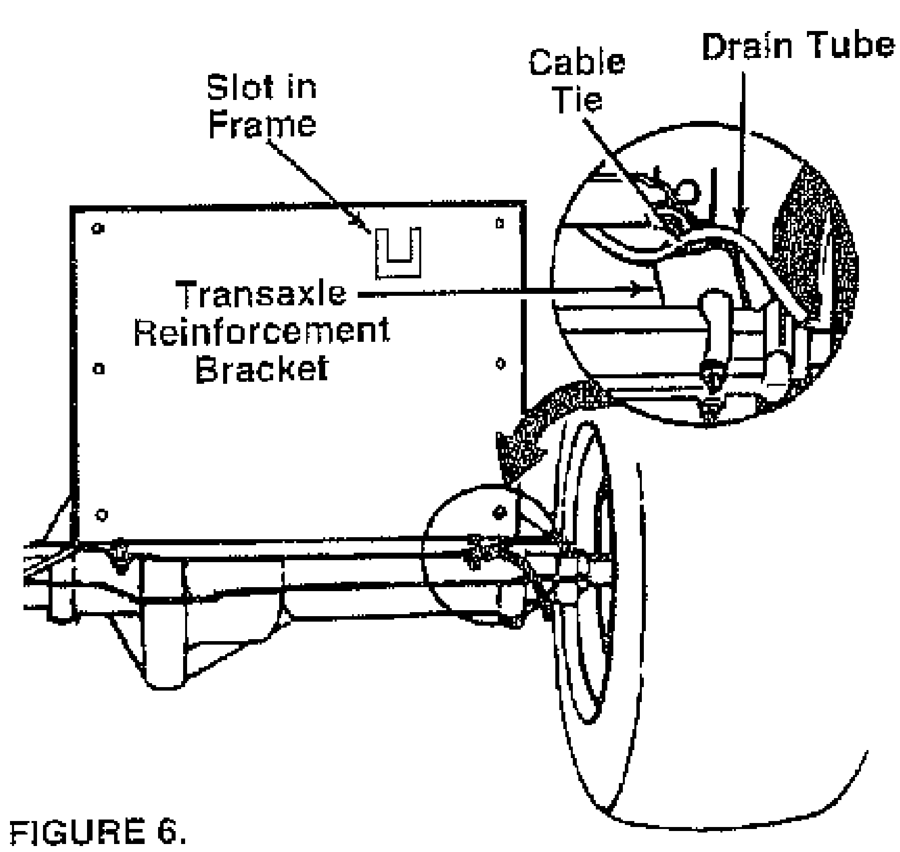


FIGURE 6.

TIRE PRESSURE

The tires on your unit may be over-inflated for shipping purposes. Reduce the tire pressure before operating the unit. Recommended operating tire pressure is approximately 12 p.s.i.

WARNING: Maximum tire pressure under any circumstances is 30 p.s.i. Equal tire pressure should be maintained on all tires.

LEVELING THE DECK

With unit on hard, level surface, measure the distance from the bottom edge of the center of the left side of deck to the ground. Measure the same distance on the center of the right side of the deck (just behind the chute area on side discharge units). Or, place the blades in a straight line, and measure the distance from the outside edge of the blade tips to the ground.
If adjustment is needed, proceed as follows.

1. Remove the hairpin clip and flat washer from the bottom of the adjustable lift link on the left side of the deck. (Hairpin clip and flat washer are on the inside of the lift link.)
2. Pull the adjustable lift link out of the deck hanger channel. See figure 4. Turn the adjustable lift link up or down as necessary to level the deck. Usually only one or two turns are needed.
3. Insert the end of the adjustable lift link into the hole in the deck hanger channel. Recheck the adjustment. Readjust if necessary.
4. When deck is level, secure end of adjustable lift link with flat washer and hairpin clip.

INSTALLING THE BATTERY

1. Lift the seat.
2. Make certain both the negative (black) cable and the positive (red) cable are routed up through the battery opening as shown in figure 5.
3. Replace the battery into the battery opening in the same position as it was before (positive terminal is toward the front of the unit).
4. Attach the positive (red) cable to the positive terminal of the battery. Secure with hex bolt and nut previously removed. Slide rubber boot down over the positive terminal.
5. Remove the hex bolt and nut from the negative (black) cable. Attach negative cable to the negative terminal with this bolt and nut.
6. Secure battery by hooking battery strap into slot in rear frame, under the fender. See figure 6.
7. Insert the drain tube through the hole in the transaxle bracket or through the cable tie (if so equipped) which is attached to the transaxle reinforcement bracket on the **right** side of the unit. See figure 6. Be certain drain tube is routed away from the wheel rim.
8. Pull cable tie (if so equipped) to secure the drain tube, but do not overtighten or the tube could collapse. Trim excess end of cable tie.
9. Trim excess end of drain tube if necessary (about 4" should extend past the bracket or cable tie).

ILLUSTRATED PARTS

AMERICAN MADE AMERICAN OWNED

OUTDOOR POWER EQUIPMENT

MTD

YARD MACHINES

1996

Transmatic Lawn Tractors

660 thru 679 Series

MTD PRODUCTS INC • P.O. BOX 368022 • CLEVELAND, OHIO 44136-9722

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